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FARMERS AND FARMING IN LADAKH (TIBETAN KASHMIR)

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AN account of the cultivation of cereals in Ladakh presupposes a climate for their growth, bearing in mind the high altitude at which these cereals can thrive. In this lofty region of 10,000 to 14,000 feet above sea-level it is amazing that anything grows at all.

The country is one vast expanse of sandy plain and deep-cut valleys formed by colossal mountains and swift-flowing rivers. Upon the great plateaux large flocks of sheep laden with wool, borax, and salt move slowly over the tawny sand, raising clouds of dust as they proceed to the wool-clearing centre at Leh, the capital of Ladakh. It is also from these elevated regions that the famous shawl wool generally known as Pashmina comes, its final destination being Kashmir. Dropping down from the arid plateaus of Rupshu to the valleys of the Indus and its tributaries, you come to the many hamlets snuggling in the shelter of great cliffs and rocky eminences, forming with the arable land around them patches of vegetation resembling an oasis in the midst of a desert of rock and sand.

The climate of Ladakh is favourable to the growth of cereals and is a useful ally to the peasant living at high altitudes and subsisting on produce cultivated in ground which looks sterile and unpromising. Very little rain falls in Ladakh owing to the precipitation in the lower hills in the region of the Zogi Pass, which peters out by the time the higher altitudes are reached. The farmer has therefore to irrigate his fields artificially from rivers, mountain torrents derived from melting glaciers and the winter accumulations of snow. He is saved from the heart-breaking frustration of the English farmer, who must contend with capricious weather which so often ruins his crops just when he is ready to reap them. In Ladakh the peasant knows that the good weather of to-day will be followed by good weather to-morrow, so that he is saved much worry and extra work.

Frost and snow or sleet begin in September and continue in different districts without intermission until the beginning of May. The minimum temperature from December until February falls to −5° to −12° F., and there is no month in the year when there is not an occasional snowfall on the summits of the mountains. The intense cold of winter is mitigated by a dry atmosphere, clear skies, and a sun which warms provided that you remain in its direct rays. The average temperature in the shade during summer is about 75° to 80°. Thus the shortness of the summer is compensated for by the powerful rays of the sun, which ripen the grain rapidly.

The various meteorological processes which combine to form a climate are, as everyone knows, generated by the sun. It is therefore not sur-

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prising that in the rarefied atmosphere of such high altitudes as in Ladakh, where there is little precipitation and the land extremely dry and sandy, the power of the sun is very great. This in turn produces the winds which blow almost constantly from the south and south-westerly directions. The winds on the highlands of Rupshu, for instance, are continuous throughout the year, and they blow with great force when there is not even a vestige of cloud. These winds are dry and extremely cold, since they blow over the glaciers and snow accumulations, so that it may be truly said that Ladakh is in the belt of "windswept Central Asia." When travelling in these regions you cannot fail to observe that when the day is cloudy the strength of the wind is not so great; sometimes, indeed, there is no wind at all, whilst it rises to a gale immediately the skies clear. This is one reason why the traveller in these elevated regions prefers to cross the high passes ranging from 13,000 to 18,000 feet when the sky is overcast. You can never be certain of weather conditions on a pass, but when bad weather is encountered it is easier to tolerate a mist or even heavy snowfall than a powerful wind, which not only impedes progress but chills you to the bone. Long exposure to such a wind, be the sun ever so bright and warm, can reduce your morale and physical energy to a point bordering on collapse.

The peasants of Ladakh are sturdy and cheerful people, inured to long exposure to the sun and wind. Their physical endurance when on their trading expeditions or when carrying heavy loads over a pass in the teeth of a howling wind or blinding blizzard is phenomenal. They contrive to raise crops as good as can be expected considering the unpromising nature of the soil coupled with the difficulties of cultivating them at extremely high altitudes.

The herd instinct, so notably developed in the Tibetans, precludes any effort on the part of the individual to increase his annual output of crops. If a peasant wishes to open up a piece of waste land or contemplates cutting a watercourse to irrigate it, he is obliged to obtain the permission of the community. His well-intentioned plans are usually frustrated by the prejudice and conservatism of the villagers. They at once obstruct him by saying that any such enterprise would interfere with the area required for the pasturage of the communal flocks. The immediate result is that any idea of agricultural progress is strangled at its birth by the tyrannical communal conscience, which is contented to remain *in statu quo* as regards agricultural pursuits.

The practice of interchange of farming implements, such as has been customary from time immemorial, and the borrowing of oxen to till the land, tend to deprive a man of his inalienable right to independence. This is mainly due to the fact that the average Tibetan is too poor to purchase his own farm implements and too indigent to support the number of cattle necessary for the proper development of his farm. The measure of a farmer's wealth is calculated by the number of his horses, sheep, goats, and oxen, as well as the size of his granary. Very little money is passed from hand to hand, labour being paid for in man-power or in grain. Many peasants who have land but not sufficient manure to enrich it sub-let part or the whole of it on the understanding that the tenant

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556 receives half the crop in return for working the fields, the landowner being
436 responsible for the water-supply and the payment of land revenue.

427 In Ladakh, as well as in Tibet proper, where the country to a large extent is sterile, the Malthusian law, by which "there is a tendency on the
161 part of the population to increase at a greater ratio than its power of pro-
595 ducing food," actually operates. There have been writers who with great
181 plausibility advanced the view that the practice of fraternal polyandry (plurality of husbands) was intended to combat this tendency. It is more likely, however, that the custom of polyandry derives its origin from a crude state of society and originally had no such economic significance. On the other hand, it is quite possible to conceive of a condition of affairs in this arid and sandy country likely to cause widespread famine or continual warfare. Actually neither occurs, for, together with polyandry, groups of families live in one or more houses attached to the paternal property. Moreover, Tibetans generally are not warlike, and the universal virtue of hospitality and the giving of alms to all and sundry acts as a kind of safety valve against famine and war.

241 Farming activities at the outset are mildly controlled by religious
787 sanctions, and the peasants consult the oracle dictated by the Buddhist
805 priesthood as regards the auspicious moment at which farming operations may proceed. In practice, however, the auspicious time for ploughing and seeding coincides with the time at which the sun strikes certain prominent mountain peaks or cliffs at sunrise, meridian, or sunset. For
[114] instance, in a village in which I lived for ten years, a chart of the time of day was drawn up covering a whole year, based on the moment when the sun set over a particular snow-capped peak. The local astrologer—usually a lama or Buddhist priest—also compiles a calendar which serves as a guide to the farmers who can read.

241 In spite of the aridity of the country and the lack of moisture, the
134 harvests of Ladakh cannot be said to be insufficient to feed the people. The soil, however unpromising, has the peculiarity of yielding good crops year after year without its being allowed to lie fallow and without, in many cases, any attempt to cultivate an alternation of crops.

241 When a farmer contemplates opening up waste land he must first clear the ground of obstructions, such as rocks, stones, and rough grasses, and then contrive to level the surface. Everywhere you see fields constructed in the form of terraces along the sides of the hills, the stones and top layer of the earth being brought down from a higher to a lower level so as to form a wall or buttress. These parallel terraces of levelled-out land are supplied with water conducted in channels from a mountain torrent caused through the melting of glaciers or accumulations of snow. Another ingenious device for obtaining what will one day become arable land is that of building stone dikes across the sloping sides of mountains near their base. These are constructed by the peasants to assist the deposit of soil and gravel by the melting snows. They are left for years and sometimes generations for the operation of nature in preparation for the labour of man, so that in due course a sterile declivity becomes an accessible flight of terraces of cultivation.

The soil thus reclaimed from the stony and barren mountain sides has

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of course to be manured, though in practice the peasant cultivates the virgin soil for two or three years before enriching it with manure.

Owing to the scarcity of wood, the dung of cattle is dried in the sun and used for fuel, so that manure for fields is at a high premium. Recourse has therefore to be made to human manure liberally mixed with earth. In many villages public latrines are constructed for the reception of this form of manure. Again, owing to the shortage of fodder, the Tibetans never lay down straw as bedding for their animals. To increase the quantity of manure they simply add layers of earth to the droppings of the cattle in the stables, and in spring they take it away in baskets or in sacks to their fields before ploughing. To supplement the poor supply of grass and straw for their sheep and goats, the farmers use the bark of willow trees by cutting the branches and letting these animals strip them. The willow is the most popular and beneficial tree in the country, for it provides both fuel for the home and fodder for the goats and the sheep. Reforestation of the willow, as also the poplar tree, requires little effort, for all that is necessary is to stick the saplings in the ground, preferably near a watercourse, and they immediately take root.

According to the dryness of the ground it is watered previously or subsequently to ploughing. The manure is carried in sacks loaded upon donkeys or in baskets carried by the women. It is then scattered over the field and ploughed into the furrows in which the seed is sown. Sometimes the seed is broadcast on the land and then ploughed in. The plant is allowed to grow to the height of five or six inches, when a light supply of water is applied at intervals of a few days until the crop is vigorous enough to tolerate a weightier supply of water conducted along the ingeniously constructed watercourses.

Many of these watercourses are two or three miles long, depending upon the distance to the source of the water supply. Their gradients, which are usually about three feet wide by one and a half feet deep, are cleverly contrived so as to prevent a great quantity of water from flowing at one spot and causing the earth banks to break. Where an almost perpendicular cliff or solid rock is encountered, the water is conducted along wood gutters hollowed out of pine trees, forming a gallery round the cliff or rocky abutments. To conserve the supply of water large or small dams are constructed, which are guarded by a party of men chosen by the village to control the supply to the fields immediately beneath it. The water supply is of such immense importance and so hard to come by that meticulous care is taken in rationing it out to the various farm holdings in the neighbourhood. Failing an adequate supply of water for irrigation purposes it is futile to attempt to plough land, for no reliance can be placed on natural rainfall, especially in Western Tibet. The village watercourses are kept in repair by the farmers whose fields receive water from them.

Ploughing is performed by a pair of oxen (dzos—a hybrid of the yak and the cow) driven by a ploughman without reins. They are guided with the utmost precision by the voice or by a willow wand. The plough is made entirely of willow wood except for the point, which is formed by a small piece of iron. The whole structure is simple, inexpensive, and

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241 light. It can easily be carried upon the shoulders and is not liable to get out of order. The iron point which contacts the furrow requires to be sharpened fairly frequently by the local blacksmith.

The ground is not much more than scratched, as it is dry and sandy, the furrow being only four or five inches from the top of the ridge to the bottom angle. The clods of earth are broken with mattocks by the women, and it is not unusual to see villagers dragging a large bundle of thorns across the field to act as a harrow.

The weeding of fields is general but by no means universal in the country, and the necessity of taking advantage of every available article of food for the cattle leads to a regular and effective method of weeding the corn fields. About three weeks after the first blades of corn have pushed through the earth, women and children overrun the fields every morning to collect the grass and weeds springing up with the grain. The stems get disturbed by the footsteps of the weeders but are never really trodden down, and they recover their erect position in a few hours after the field has been watered. Another benefit of weeding the fields is that the corn gets the full power of the soil and an access of light and air is admitted to the roots of the plants.

The cereals grown in Ladakh are barley, wheat, buckwheat, mustard seed, peas, and beans. At villages not higher than 10,000 feet above sea level it is usual to sow two crops annually. The first crop, which consists of barley, is sown on or about February 25, followed on August 25 by the sowing of a crop of buckwheat.

The order in which the various crops are sown is, first, beans, then wheat, peas, barley, mustard plant, and, lastly, buckwheat.

Barley is of two varieties, distinguished chiefly by the peculiarity of retaining or parting from the rough exterior capsule after the grain has left the ear. The first kind, called So-wa, is very much like the common barley grown in Europe. The second kind is called Shirok, of which there are five varieties—namely, (1) So Shirok, a slow or late barley; (2) Gyog Nas, quick or early barley; (3) Yangma or Yangkar, which is also early and of a whitish colour; (4) Nak Nas, black barley; (5) Drug-zur-Nas, or six-sided barley.

The husked barley has to be raised in places which are the warmest and most sheltered from the winds, and though the seeds of the Shirok can be sown in such situations the produce will be rough barley. The latter again yields naked barley at higher and colder altitudes, as in the lands round Leh (11,500 feet).

The So Shirok barley, or late barley, is sown in places where the temperature is not specially cold yet where the summer heat is not sufficient to permit the cultivation of two crops annually (one of barley and one of buckwheat).

The Gyog Nas is sown in very high altitudes (13,000 to 14,000 feet), where the days are very hot and the nights cold. It does not as a rule attain a greater height than one and a half feet.

241 Nas Yangma or Yangkar is cultivated everywhere and thrives in a
252 temperate to warm climate. It is the favourite variety of barley, as its yield is good and little inferior to wheat. The porridge made from this

241 barley after it has been parched and milled into flour is extremely
[252] nutritious, by the side of which Quaker Oats is insipid.

Nak Nas, or black barley, grows at the highest altitude at which any
[262] grain can be cultivated. Though it gives a good yield its flour is objected to even by Tibetans, who are by no means fastidious, on account of its black colour.

Drug-zur-Nas, or the six-sided barley, is on the whole inferior to Yangkar Nas both in yield and in quality.

Wheat flourishes in Ladakh and constitutes a really nourishing and palatable food. The two varieties chiefly grown are Drokar, or white wheat, and Dromar, red wheat. It requires less manure than barley. The sandy soil is particularly suitable to the growth of wheat and excellent crops can be seen at 12,000 feet above sea-level. The wholewheat flour makes excellent bread.

A considerable quantity of buckwheat (Drawo) is cultivated, partly because it requires little manure and can flourish with a minimum of water. Its nutritive content bears no comparison with the locally grown barley or wheat.

[373] The mustard plant (Nyungskar) is cultivated because it produces
[258] mustard oil for frying, or else illumination when a wick floating in oil serves in lieu of kerosine oil. Oil extracted from the kernels of apricots serves a similar purpose.

The average yield of crops in Ladakh is not much more than sevenfold, though travellers to this country have estimated it at a higher figure. Many peasants are too poor to apply sufficient manure upon their lands, so this alone would account for the apparently low yield of cereals. When there is a scarcity of manure the farmer will plough in the wheat stubble of a field, and occasionally he will leave a field fallow for a year or two before sowing it with wheat or barley.

Reaping is performed with a hook or sickle, the stems of the grain being cut as close to the soil as possible. The threshing and winnowing operations are those which have been practised for hundreds of years in the East—namely, threshing with oxen or donkeys tied to a centre pole in the threshing floor, and winnowing by the use of wooden forks, with which the chaff is thrown into the air and is blown away by the wind, the grain falling to the ground.

511 No matter where you go in the country you find that the people con-
406 trive to eke out a livelihood, though in most cases there is very little margin for luxuries even on a modest scale. This is due to the fact that the majority of peasants are born with a legacy of grain debts which it is obvious they have not the power to repay. In the meantime, when seeding-time comes round, they themselves borrow grain at 25 per cent. for about four or five months, by which time the crop is harvested. Down swoops the creditor to claim not only the interest but also the capital of the debt, leaving the peasant with the scantiest supply of grain with which he must support his family during the winter months. By that time he has consumed the grain which he should use for seeding, so he perforce must add to his accumulated debts by taking out another loan of grain. The grain stockist in this country is a usurer of the worst type, for he takes

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advantage of the illiteracy of the debtors by manipulating his bills, adding compound interest and in other ways cheating the unfortunate debtor. It is true that the law provides redress or an equitable rate of repayment of loans, but it is scarcely ever invoked by the people, for the grain stockists have so great a stranglehold on the people and are so efficiently organized that there is no recourse for them but to keep on as good terms as possible with their creditors. The only antidote to this form of tyranny would, it seems, be to start co-operative enterprise in the way of a grain bank organized by the peasants themselves, but, alas! they have not attained to that state of society in which this is possible. In short, the exactions and unscrupulous devices practised on the people by grain usurers and petty revenue officials in this country could be tolerated only by those strongly imbued with a fatalistic view of life. This has its basis in the belief, common amongst these Buddhist peasants, that all the ills and abuses in life which they suffer are retribution for evil deeds committed in former existences.

The farm work in the country is done chiefly by the women, who, besides carrying out their functions in their domestic sphere, look after the fields whilst their menfolk go out on trading expeditions, many only returning when the harvest is gathered.

Yet the great paradox in this country is that with all the privations they suffer, the low standard of living to which they have grown accustomed, and the lack of healthy development of social and intellectual activity, they are the cheeriest and most contented people it would be possible to meet. Their wants are few and their ambitions greatly restricted, and so long as they have clothes to wear, which they make from the wool of their sheep, and food to eat they remain cheerful, hospitable, and carefree. It seems unlikely that there will occur any such thing as agrarian agitation for better conditions of life for many centuries to come, for the customs of centuries and the usages practised from time immemorial have become so ingrained in the general make-up of the people that a new idea or a new way of life is repugnant to them.

Yet when all has been said about the living conditions of these farmers of Ladakh one cannot help liking them for their simplicity, their natural kindness, and their cheerfulness. The longer you live amongst them the more you are attracted to them.